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DATE: Thursday, February 05, 2004

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<input type="checkbox"/>	L2	(L1 or pacap) and @pd > 20040113	15
<input type="checkbox"/>	L1	(pituitary adenylate cyclase activating polypeptide) and @pd > 20040113	6

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NEWS 7 OCT 21 BIOSIS file reloaded and enhanced  
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NEWS 17 DEC 22 Additional INPI reactions and pre-1907 documents added to CAS databases  
NEWS 18 DEC 22 IFIPAT/IFIUDB/IFICDB reloaded with new data and search fields  
NEWS 19 DEC 22 ABI-INFORM now available on STN  
NEWS 20 JAN 27 Source of Registration (SR) information in REGISTRY updated and searchable  
NEWS 21 JAN 27 A new search aid, the Company Name Thesaurus, available in CA/CAPLUS  
NEWS 22 FEB 05 German (DE) application and patent publication number format changes

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=> s pituitary adenylate cyclase activating polypeptide or PACAP  
L1 6494 PITUITARY ADENYLATE CYCLASE ACTIVATING POLYPEPTIDE OR PACAP

=> s l1 and (knockout or transgen? or disrupt? or delet? or deficien?)  
L2 366 L1 AND (KNOCKOUT OR TRANSGEN? OR DISRUPT? OR DELET? OR DEFICIEN?)

L2 ANSWER 1 OF 366 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 2004:13351 BIOSIS  
DN PREV200400012847  
TI \*\*\*PACAP\*\*\* treatment maintains the beta cell mass and retards the onset of hyperglycemia in beta cell-specific calmodulin-overexpressing \*\*\*transgenic\*\*\* mice.  
AU Tsunekawa, S. [Reprint Author]; Miura, Y. [Reprint Author]; Yamamoto, N. [Reprint Author]; Ariyoshi, Y. [Reprint Author]; Senda, T.; Oiso, Y. [Reprint Author]; Niki, I.  
CS First Dept of Internal Medicine, Nagoya University, School of Medicine, Nagoya, Japan  
SO Diabetes & Metabolism, (August 2003) Vol. 29, No. Hors serie 2, pp. 4S58.  
print  
Meeting Info.: 18th International Diabetes Federation Congress, Paris, France, August 24-29, 2003.  
ISSN: 1262-3636.  
DT Conference; (Meeting)  
Conference; Abstract (Meeting Abstract)  
LA English  
ED Entered STN: 24 Dec 2003  
Last Updated on STN: 24 Dec 2003

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FILE 'BIOSIS, EMBASE, CAPLUS' ENTERED AT 16:51:20 ON 05 FEB 2004  
L1 6494 S PITUITARY ADENYLATE CYCLASE ACTIVATING POLYPEPTIDE OR PACAP  
L2 366 S L1 AND (KNOCKOUT OR TRANSGEN? OR DISRUPT? OR DELET? OR DEFICIEN?)

=> s l1 (1s) (knockout or transgen? or disrupt? or delet? or deficien?)  
L3 280 L1 (1S) (KNOCKOUT OR TRANSGEN? OR DISRUPT? OR DELET? OR DEFICIEN?)  
L4 154 DUP REM L3 (126 DUPLICATES REMOVED)

=> dup rem l3  
PROCESSING COMPLETED FOR L3  
L4 154 DUP REM L3 (126 DUPLICATES REMOVED)

=> s l4 and PY=2002  
L5 35 L4 AND PY=2002

=> s l4 and PY<=2002  
2 FILES SEARCHED...  
L6 124 L4 AND PY<=2002

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L2 366 S L1 AND (KNOCKOUT OR TRANSGEN? OR DISRUPT? OR DELET? OR DEFICIEN?)  
L3 280 S L1 (1S) (KNOCKOUT OR TRANSGEN? OR DISRUPT? OR DELET? OR DEFICIEN?)  
L4 154 DUP REM L3 (126 DUPLICATES REMOVED)  
L5 35 S L4 AND PY=2002  
L6 124 S L4 AND PY<=2002

=> s l2 and psychiatr?  
L7 3 L2 AND PSYCHIATR?

=> dup rem l7  
PROCESSING COMPLETED FOR L7  
L8 3 DUP REM L7 (0 DUPLICATES REMOVED)

=> d bib abs 1-  
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L8 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 2003:1004871 CAPLUS  
DN 140:3785  
TI Non-human animal model for \*\*\*psychiatric\*\*\* disorder with \*\*\*deficient\*\*\* in function of \*\*\*pituitary\*\*\* \*\*\*adenylate\*\*\* \*\*\*cyclase\*\*\* - \*\*\*activating\*\*\* \*\*\*polypeptide\*\*\* gene  
IN Baba, Akemichi; Matsuda, Toshio; Hashimoto, Hitoshi; Shintani, Norihito  
PA Japan  
SO U.S. Pat. Appl. Publ., 13 pp., Cont.-in-part of U.S. Pat. Appl. 2001 34,885.  
CODEN: USXXCO  
DT Patent  
LA English

## FAN.CNT 2

PATENT NO. KIND DATE APPLICATION NO. DATE

PI US 2002162128 A1 20021031 US 2002-73135 20020213  
US 2001034885 A1 20011025 US 2001-835627 20010417  
PRAI JP 2000-118088 A 20000419  
US 2001-835627 B2 20010417

AB The invention relates to mammalian model animal for \*\*\*psychiatric\*\*\* disorders having a chromosome of a somatic cell and a germ cell with \*\*\*deficiency\*\*\* of function of \*\*\*pituitary\*\*\* \*\*\*adenylate\*\*\* \*\*\*cyclase\*\*\* - \*\*\*activating\*\*\* \*\*\*polypeptide\*\*\* (\*\*\*PACAP\*\*\* ) gene. The exon 5 of gene \*\*\*PACAP\*\*\* of mammal is \*\*\*disrupted\*\*\* and replaced with neomycin resistance gene. The results of behavioral expts. with \*\*\*PACAP\*\*\* -/- mice demonstrate that \*\*\*disruption\*\*\* of the \*\*\*PACAP\*\*\* gene in mice lead to perturbations in psychomotor behaviors, esp. the exploratory component of locomotor behavior, implicating \*\*\*PACAP\*\*\* in psychotic brain functions. Furthermore, the 5-HIAA level was decreased slightly in the cortex and striatum of the \*\*\*PACAP\*\*\* -/- mouse brain. One of the striking findings of the present study was that \*\*\*PACAP\*\*\* -/- mice showed abnormal jumping behavior in the open field arena. The \*\*\*PACAP\*\*\* -/- mouse should be a valuable tool to investigate both normal and pathol. processes in which \*\*\*PACAP\*\*\* has been proposed to play a role.

L8 ANSWER 2 OF 3 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 2002:587826 BIOSIS  
DN PREV200200587826  
TI Higher brain functions of \*\*\*PACAP\*\*\* and a homologous Drosophila memory gene amnesiac: Insights from knockouts and mutants.  
AU Hashimoto, Hitoshi; Shintani, Norihito; Baba, Akemichi [Reprint author]  
CS Laboratory of Molecular Neuropharmacology, Graduate School of Pharmaceutical Sciences, Osaka University, 1-6 Yamadaoka, Suita, Osaka, 565-0871, Japan  
baba@phs.osaka-u.ac.jp  
SO Biochemical and Biophysical Research Communications, (September 27, 2002)  
Vol. 297, No. 3, pp. 427-432. print.  
CODEN: BBRCA9. ISSN: 0006-291X.  
DT Article  
LA English  
ED Entered STN: 13 Nov 2002  
Last Updated on STN: 13 Nov 2002

AB Neuropeptides usually exert a long-lived modulatory effect on the small-molecule neurotransmitters with which they colocalize via regulation of the response times of second messenger systems. \*\*\*Pituitary\*\*\* \*\*\*adenylate\*\*\* \*\*\*cyclase\*\*\* - \*\*\*activating\*\*\* \*\*\*polypeptide\*\*\* (\*\*\*PACAP\*\*\* ) functions as a neuromodulator and neurotransmitter and regulates a variety of physiological processes. \*\*\*PACAP\*\*\* is structurally highly conserved during evolution, implying its vital importance. In Drosophila, loss-of-function mutations in a \*\*\*PACAP\*\*\* -like neuropeptide gene, amnesiac (amn), affect both memory retention and ethanol sensitivity. The amnesiac gene is expressed in neurons innervating the mushroom body lobes, the olfactory associative learning center. Conditional genetic ablation of neurotransmitter release from these neurons mimics the amnesiac memory phenotypes, suggesting an acute role for amnesiac in memory. However, genetic rescue experiments also suggest developmental defects in amnesiac mutants, implying a role in neuronal development. There is a parallel between memory formation in Drosophila and mammals. \*\*\*PACAP\*\*\* -specific (PAC1) receptor-\*\*\*deficient\*\*\* mice show a deficit in hippocampus-dependent associative learning and mossy fiber long-term potentiation (LTP). Meanwhile, \*\*\*PACAP\*\*\* -\*\*\*deficient\*\*\* mice display a high early mortality rate and additional CNS phenotypes including behavioral and psychological phenotypes (e.g., hyperlocomotion, intense novelty-seeking behavior, and explosive jumping). A functional comparison between \*\*\*PACAP\*\*\* and amnesiac underlines phylogenetically conserved functions across phyla and may provide insights into the possible mechanisms of action and evolution of this neuropeptidergic system.

L8 ANSWER 3 OF 3 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 1999:28142 BIOSIS  
DN PREV199900028142  
TI Truncated presenilin 2 derived from differentially spliced mRNAs does not affect the ratio of amyloid beta-peptide 1-42/1-40.  
AU Gruenberg, Juergen; Walter, Jochen; Eckman, Chris; Capell, Anja; Schindzielorz, Alice; Younkin, Steven; Mehta, Nitin; Hardy, John; Haass, Christian [Reprint author]  
CS Central Inst. Mental Health, Dep. Molecular Biol., J5, 68159 Mannheim, Germany  
SO Neuroreport, (Oct. 5, 1998) Vol. 9, No. 14, pp. 3293-3299. print.  
CODEN: NERPEZ. ISSN: 0959-4965.  
DT Article  
LA English  
ED Entered STN: 3 Feb 1999  
Last Updated on STN: 3 Feb 1999

AB Numerous mutations in the presenilin (PS) genes cause early onset familial Alzheimer's disease (FAD). Here we characterize the expression of two naturally occurring alternative PS2 transcripts which lack either exons 3 and 4 (PS2 DELTAexon3,4) or exons 3, 4, and 8 (PS2 DELTAexon3,4,8). These transcripts do not contain the natural initiation codon within exon 3.

The transcripts are efficiently translated as N-terminal truncated proteins. These \*\*\*deleted\*\*\* proteins are still able to regulate formation of endogenous PS fragments, indicating that the C-terminal half of the PS2-protein is sufficient for this phenomenon. Although approx 50% of the PS1 and both PS2 mutations occur within the N-terminal region lacking in the PS2 DELTAexon3,4 and PS2 DELTAexon3,4,8 proteins, expression of these truncated proteins does not affect pathological generation of amyloid beta-peptide (Abeta). This suggests that point mutations causing AD are gain of function mutations.

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L1 6494 S PITUITARY ADENYLATE CYCLASE ACTIVATING POLYPEPTIDE OR PACAP  
L2 366 S L1 AND (KNOCKOUT OR TRANSGEN? OR DISRUPT? OR DELET? OR DEFICI  
L3 280 S L1 (1S) (KNOCKOUT OR TRANSGEN? OR DISRUPT? OR DELET? OR DEFICI  
L4 154 DUP REM L3 (126 DUPLICATES REMOVED)  
L5 35 S L4 AND PY=2002  
L6 124 S L4 AND PY<=2002  
L7 3 S L2 AND PSYCHIATRY  
L8 3 DUP REM L7 (0 DUPLICATES REMOVED)

&gt;&gt; s l2 and homozygo?

L9 7 L2 AND HOMOZYGO?

&gt;&gt; dup rem l9

PROCESSING COMPLETED FOR L9

L10 4 DUP REM L9 (3 DUPLICATES REMOVED)

&gt;&gt; d bib abs 1-

YOU HAVE REQUESTED DATA FROM 4 ANSWERS - CONTINUE? Y/(N):y

L10 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 2003:282277 CAPLUS  
DN 138:282471

TI Use of human and mouse insulin 6 gene-encoded protein in improving spermatocyte motility in diagnosis and treatment of male sterility  
IN Menon, Ram K.; Sperling, Mark A.; Lu, Chunxia; Witche, Selma; Kasik, John  
PA Children's Hospital of Pittsburgh, USA  
SO PCT Int. Appl., 92 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

PATENT NO. KIND DATE APPLICATION NO. DATE

PI WO 2003028457 A1 20030410 WO 2002-US030781 20020927  
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, BG, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2003229035 A1 20031211 US 2001-987399 20010928  
PRAI US 2001-987399 A 20010928

AB The present invention relates to a novel gene from the insulin family, INSL6, which expresses a protein restoring motility in ciliated cells. The proteins of the insulin family play essential roles in pleiotropic physiol. processes affecting metab., growth, and reprod. A new member of the insulin family named Ins16 is disclosed playing an essential role in ciliated cell activity. Ins16 plays an essential role in spermatocyte function. Thus, the INSL6 gene and its protein product are useful in the treatment of infertility caused by the loss of spermatocyte motility. A method of modulating male fertility is disclosed.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L10 ANSWER 2 OF 4 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
AN 2001:504687 BIOSIS  
DN PREV200100504687

TI Sympathoadrenal function in \*\*\*pituitary\*\*\* \*\*\*adenylate\*\*\* \*\*\*cyclase\*\*\* - \*\*\*activating\*\*\* \*\*\*polypeptide\*\*\* (\*\*\*PACAP\*\*\* )-\*\*\*deficient\*\*\* mice.  
AU Hamelink, C. R. [Reprint author]; Lee, H. W. [Reprint author]; Damadzic, R. [Reprint author]; Tjurmina, O.; Young, W. S. [Reprint author]; Weihe, E.; Eiden, L. E. [Reprint author]  
CS Lab. of Cellular and Molecular Regulation, NIMH, NIH, Bethesda, MD, USA  
SO Society for Neuroscience Abstracts, (2001) Vol. 27, No. 1, pp. 620. print.  
Meeting Info.: 31st Annual Meeting of the Society for Neuroscience. San Diego, California, USA. November 10-15, 2001.  
ISSN: 0190-5295.

DT Conference; (Meeting)  
Conference; Abstract (Meeting Abstract)  
LA English  
ED Entered STN: 31 Oct 2001  
Last Updated on STN: 23 Feb 2002

AB \*\*\*PACAP\*\*\*'s role as a splanchnic neurotransmitter regulating adrenomedullary secretion is imprecisely defined. We generated ES cells heterozygous for \*\*\*PACAP\*\*\* \*\*\*deletion\*\*\* by homologous recombination, and from them, mice \*\*\*homozygous\*\*\* for the wild-type (+/+) or null (-/-) \*\*\*PACAP\*\*\* allele. Challenge with 2-5 U/kg of insulin resulted in decreased survival, a less profound elevation of circulating epinephrine, and a more profound hypoglycemia, in (-/-) than in (+/+) mice. Decreased survival of (-/-) mice after insulin challenge could be partially reversed by concomitant administration of glucose (20ug/mouse/hour, i.p.), isoproterenol (3ug/mouse/hour, i.p.), or \*\*\*PACAP\*\*\* (10nmol/mouse single dose, i.p.) with 5 U/kg insulin (i.p.). In addition to decreased epinephrine output in \*\*\*PACAP\*\*\* (-/-) mice following insulin, \*\*\*PACAP\*\*\* (-/-) mice exhibited no elevation in the activity of adrenal tyrosine hydroxylase, the rate-limiting enzyme in catecholamine biosynthesis, whereas adrenal tyrosine hydroxylase activity was doubled 4-8 hours after insulin administration (2 U/kg) in \*\*\*PACAP\*\*\* (+/+) mice. These data suggest that \*\*\*PACAP\*\*\* is required to couple secretion and biosynthesis of adrenomedullary catecholamines to maintain plasma catecholamine levels sufficient for gluconeogenesis during prolonged hypoglycemia.

L10 ANSWER 3 OF 4 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS  
INC. on STN  
DUPLICATE 1

AN 2000:491720 BIOSIS  
DN PREV200000491841

TI \*\*\*Pituitary\*\*\* \*\*\*adenylate\*\*\* \*\*\*cyclase\*\*\* .  
\*\*\*activating\*\*\* \*\*\*polypeptide\*\*\* precursor is processed solely by  
prohormone convertase 4 in the gonads.

AU Li, Min [Reprint author]; Mbikay, Majambu; Arimura, Akira  
CS U.S.-Japan Biomedical Research Laboratories, Tulane University Hebert  
Center, 3705 Main Street, Belle Chasse, LA, 70037-3001, USA  
SO Endocrinology, (October, 2000) Vol. 141, No. 10, pp. 3723-3730. print  
CODEN: ENDOAO. ISSN: 0013-7227.

DT Article  
LA English  
ED Entered STN: 15 Nov 2000  
Last Updated on STN: 10 Jan 2002

AB \*\*\*Pituitary\*\*\* \*\*\*adenylate\*\*\* \*\*\*cyclase\*\*\* .  
\*\*\*activating\*\*\* \*\*\*polypeptide\*\*\* ( \*\*\*PACAP\*\*\* ) is abundant not  
only in the brain, but also in the testis. Immunohistochemical studies  
have shown that \*\*\*PACAP\*\*\* .LI in rat testis is expressed stage  
specifically in spermatids. This suggests that testicular \*\*\*PACAP\*\*\*  
participates in the regulatory mechanism of spermatogenesis.  
Additionally, the ovary contains a relatively small amount of  
\*\*\*PACAP\*\*\* , conceivably involved in the regulation of folliculogenesis.  
\*\*\*PACAP\*\*\* is synthesized as a prehormone and is processed by  
prohormone convertases, such as PC1, PC2, and PC4. PC4 is expressed only  
in the testis and ovary, where neither PC1 nor PC2 is expressed. However,  
whether PC4 is the sole endoprotease for the \*\*\*PACAP\*\*\* precursor in  
the gonads remains unknown. Recent studies using PC4- \*\*\*transgenic\*\*\*  
mice revealed that male PC4-null mice exhibited severely impaired  
fertility, although spermatogenesis appeared to be normal. The female  
PC4-null mice exhibited delayed folliculogenesis in the ovaries. To  
examine whether PC4 is the sole processing enzyme for the \*\*\*PACAP\*\*\*  
precursor in the gonads, we analyzed testicular and ovarian extracts from  
the PC4-null and wild-type mice for \*\*\*PACAP\*\*\* (PACAP38 and PACAP27)  
and its messenger RNA using reverse phase HPLC combined with specific RIAs  
and ribonuclease protection assay, respectively. For RIAs, three  
different polyclonal antisera with different recognition sites were used  
to identify PACAP38, PACAP27, and its precursor. Neither the testis nor  
the ovary from the PC4-null mice expressed PACAP38 or PACAP27, but the  
levels of \*\*\*PACAP\*\*\* transcripts in the testis and ovary of  
\*\*\*homozygous\*\*\* PC4- \*\*\*deficient\*\*\* mice were considerably elevated  
compared with those of the wild-type and heterozygous animals. The  
findings indicate that PC4 is the sole processing enzyme for the precursor  
of \*\*\*PACAP\*\*\* in the testis and ovary of mice. The possibility that  
the absence of bioactive \*\*\*PACAP\*\*\* in the testis and ovary of  
PC4-null mice caused severely impaired fertility in the males and delayed  
folliculogenesis in females warrants investigation.

L10 ANSWER 4 OF 4 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS  
INC. on STN  
DUPLICATE 2

AN 1995:34746 BIOSIS  
DN PREV199598049046

TI Molecular Basis of Familial Growth Hormone \*\*\*Deficiency\*\*\* .  
AU Perez Jurado, L. A.; Argente, J. [Reprint author]  
CS Div. Paediatr. Endocrinol., Hosp. Nino Jesus, Avda. Menendez y Pelayo, 65,  
E-28009 Madrid, Spain  
SO Hormone Research (Basel), (1994) Vol. 42, No. 4-5, pp. 189-197.  
CODEN: HRMRA3. ISSN: 0301-0163.

DT Article  
General Review; (Literature Review)  
LA English  
ED Entered STN: 25 Jan 1995  
Last Updated on STN: 14 Mar 1995

AB A significant proportion of cases of GH \*\*\*deficiency\*\*\* (5-30%) may

be due to genetic causes. At least four Mendelian types of isolated GH  
\*\*\*deficiency\*\*\* (IGHD) have been delineated based on the mode of  
inheritance and the degree of GH \*\*\*deficiency\*\*\* : IGHD type IA,  
autosomal recessive with absent endogenous GH; type IB, autosomal  
recessive with diminished GH; type II, autosomal dominant with diminished  
GH; and type III, X-linked with diminished GH. Most patients with IGHD  
type IA have heterogeneous \*\*\*deletions\*\*\* , ranging in size from 6.7  
kb to 45 kb, that encompass the entire gene encoding for pituitary GH,  
GH-1. Nonsense, frameshift and splice GH-1 mutations that predict a  
complete lack of bioactive GH synthesis in \*\*\*homozygotes\*\*\* have also  
been reported in association with IGHD IA. Additionally, some cases of  
IGHD type II have dominant negative mutations in one allele of the GH-1  
gene. Panhypopituitary Dwarfism (PD), a condition characterized by  
\*\*\*deficiency\*\*\* of at least other pituitary trophic hormone in addition  
to GH \*\*\*deficiency\*\*\* , can have autosomal and X-linked modes of  
inheritance. Interestingly, both recessive and dominant mutations at the  
gene encoding for the pituitary transcription factor Pit-1 have been found  
in a specific subtype of PD that combines GH, prolactin and TSH  
\*\*\*deficiencies\*\*\* . In contrast, the loci and mutations responsible for  
the other Mendelian forms of IGHD and PD remain unknown. Linkage studies  
using genetic markers have excluded the GH locus on chromosome 17 in approx  
50% of the cases and the GH-releasing hormone (GHRH) locus on  
chromosome

20 in all the studied families (types IB and II) in whom the mutation  
cannot be traced to defects in these genes. Furthermore, several  
uncharacterized loci on the X chromosome must be required for normal GH  
secretion. In summary, genetic studies have provided a better  
understanding of the mechanism of GH \*\*\*deficiency\*\*\* as well as new  
tools for specific diagnosis of several forms of IGHD and PD. However,  
isolation and evaluation of other genes involved in GH secretion is still  
necessary. Several possible candidate genes have been recently cloned and  
characterized, including genes encoding the human GHRH receptor, the  
\*\*\*pituitary\*\*\* \*\*\*adenylate\*\*\* \*\*\*cyclase\*\*\* \*\*\*activating\*\*\*  
\*\*\*polypeptide\*\*\* ( \*\*\*PACAP\*\*\* ) and the \*\*\*PACAP\*\*\* receptor.  
Analysis of these genes in IGHD and PD families may clarify the molecular  
basis of the defect and also provide new insights into the complex  
regulation of GH.

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TOTAL

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